SIGNIFICANCE OF TOBACCO SMOKING FOR ASTHMA AND RHINITIS

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ABSTRACT:

Forty-one patients with asthmatic and/or rhinitis and 41 controls of the same age and sex distribution were interviewed about the influence of smoking on health and about their attitude towards the prohibition of smoking in public places.

The study shows that 50 % of the asthmatic patients and 36 % of the patients with rhinitis develop, at least occasionally, attacks when exposed to smoking.

An increased tendency to coughs and colds was present in both control and patient groups. The numbers are too small to be conclusive. No tendency to an increased incidence of sinuitis or otitis was observed.

The study points out a significant difference between the patient group and the control group's social engagements, because the allergic patients, to a certain extent, stay away from meetings where smoking occurs.

There are fewer smokers among the allergic patients than among the controls, but the difference is not significant.

Finally, the study shows, in both the patient group and the control group, such a strong dislike of enforced passive smoking that a ban on smoking in public places should be seriously considered, with the provision of special smoking rooms.

Tobacco smoke is an irritant of such intensity that it can be suspected as being of significance for patients with asthma and/or rhinitis. The present study has the purpose of elucidating whether patients with asthma or rhinitis show an increased tendency to develop upper respiratory tract infections, otitis media and inflammation of the sinuses or a tendency toward exacerbation of the underlying disease, namely, asthma or rhinitis, as a consequence of active or passive smoking.

The investigation was intended to elucidate whether such tendencies implied social withdrawal.

An attempt was also made to determine the attitude of the patient group and of the control group toward passive smoking.

Personal Investigations

Materials and Methods

The investigation included all patients 15 years old and older (= recorded independently by the health insurance organization) seen in the practice of one of the authors (JR) because of asthma or rhinitis during the course of one year (June 13, 1977 to June 12, 1978), whether or not allergy was found by the allergological investigation, and whether or not such examination was performed.

The group of patients with asthma or hay fever included a total of 66 subjects. Patients who dropped out spontaneously or changed physicians before the investigation began, patients under the age of 16 years (= not registered by the health insurance organization), and patients who did not cooperate adequately, i.e., a total of 23 patients, as well as two persons who at the time of the review of the diagnosis did not know that they should have registered, were eliminated. Forty-one persons remained in the investigation. Their distribution is shown in Table 1.

Definitions

Bronchial asthma: attacks of dyspnea of expiratory type.

Allergic rhinitis: attacks of sneezing and running nose without signs of infection and possibly with concomitant conjunctivitis.

Table 1. Patients.

	Allergy		
	Demonstrated	Not demonstrated	Total
Pure asthma	1	4 (2)	5
Pure rhinitis	12	11 (6)	23
Asthma and rhinitis	10	3 (2)	13
	23	18 (10)	41

Allergological examination: at least anamnesis, skin test and RAST [radioallergosorbent test] performed at a specialized department or by a specialist.

The control group was chosen on the basis of a health insurance list to match the patients as to age and sex. Persons with known or suspected allergy are excluded as controls and are replaced by new ones.

A questionnaire was sent to all patients and controls, which was the same for all persons aside from a simple question (concerning asthma and rhinitis). The answers were incomplete in 19 cases (11 patients and 8 controls). One of the authors (JR) complemented the investigation with interviews over the telephone. The questions were not enlarged upon in the telephone interview, but the same wording was used as in the questionnaire. The χ^2 test was used as the statistical test. A single exception will appear from the text.

Survey of Attitudes

The following questions were asked:

"Should tobacco smoking in public places be allowed without regard to others?"

"Should tobacco smoking in public spaces be restricted to certain rooms and be prohibited in all other rooms?"

If you did not answer with "yes" to one of the two questions above, please answer the following question:

"Should a patient with lung disease or hay fever be able to refuse to tolerate smoking at meetings?"

"If you express your desire to have a meeting without smoking, should it happen?"

1) If one individual requests it?

2) If the majority are for it?

3) Other possibilities?

Five groups are identified on the basis of the answers:

1) Does not desire any intervention whatsoever

2) Agrees with the ban, if the majority want it

3) Agrees with the ban, if a single patient wants it

4) Agrees with the ban, if a single -- even healthy -- person wants it

5) Would like to see smoking restricted to separate smoking rooms and banned in all other places.

Results

Fourteen of the 41 patients and 21/41 controls gave positive answers to the question "Do you smoke yourself?". Consequently, there are fewer smokers among the patients, but the difference is not significant.

Ex-smokers who do not smoke currently were asked the question: "Did you stop smoking because of the disease/any disease?" Five of 11 patients and 0/8 controls said yes. The figures show that patients tend to quit smoking because of the disease.

The smokers were asked the question "Have you ever felt inconvenienced by your own smoking?" Six of the 14 patients and 8/21 controls felt inconvenienced by their own smoking.

All persons were asked the question "Has tobacco smoke ever inconvenienced you?" Thirty-seven of the 41 patients and 27/41 controls answered with a yes, i.e., there were significantly more patients than controls among those who said yes (Fisher's exact test: $p = 0.0087$).

In answering the question: "Have you observed any increased tendency to develop asthma, rhinitis, attacks of cough without asthma, sinusitis, otitis media or colds after having been exposed to tobacco smoke?" 13/36 of the rhinitis patients (36%) indicated increased tendency to develop rhinitis and 9/18 of the asthma patients (50%) indicated a correspondingly increased tendency to asthma, or a total of 19 of the 41 patients (46%), because there was an overlap between the two groups, as is indicated in Table 1. Hardly any patients indicated increased tendency to develop sinusitis and otitis media (Table 2).

Both the patient group and the control group show a certain, not significantly different, tendency to develop attacks of cough and colds after exposure to tobacco smoke.

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Table 2. Answer to the question: "Have you observed increased tendency to the following diseases after having been exposed to tobacco smoke?"

	Number of positive replies	
	Patients	Controls
Attacks of cough	14	9
Sinusitis	1	0
Otitis media	0	0
Colds	8	5
Total, at least one of these	17	11
Total, including asthma or hay fever	24	-

Social Consequences

Four patients and three control persons, or less than 10% in both groups, believed they had withdrawn because of exposure to tobacco smoke.

Ten of the asthma/rhinitis patients (24%) said that they were forced to skip meetings where participants smoked -- in response to the question "Can the smoking of other people cause you to stay away from meetings and events?" Only five patients said that they were forced to do so regardless of whether or not they were having asthma/rhinitis symptoms. Three control persons felt forced to stay away (significant difference, $p = 0.04$).

The replies obtained in connection with the attitude investigation are shown in Figure 1. 36/41 patients and 32/41 controls advocate either a total ban on smoking in public places, or when only one person present wishes it. There is no difference in the attitudes of the smokers and nonsmokers, either in the patient group or in the control group.

The numbers are small, but show a widespread attitude against forced passive smoking.

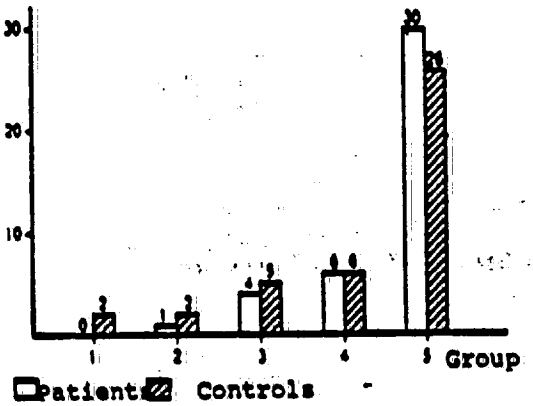

Fig. 1. Attitudes toward smoking in public places.

Group 1: wishes no intervention whatsoever
Group 2: wishes ban if the majority are for it
Group 3: wishes ban if a single patient wishes it
Group 4: wishes ban if a single, healthy person wishes it
Group 5: wishes smoking banned and restricted to separate smoking room.

The material is too small for a further breakdown of the patient group to a group which has confirmed allergy and a group in which the tests did not reveal allergy.

Discussion

The questionnaire survey shows that 1/3 of the patients with rhinitis and 1/2 of the patients with asthma have increased tendency to attacks of the underlying disease during exposure to tobacco smoke.

The questionnaire survey also seems to show an increased tendency to attacks of cough and common cold after exposure to tobacco smoke.

but the increase is not significant statistically, whereas sinusitis and otitis media were not found as a consequence of tobacco smoking.

The survey shows that tobacco smoking means that certain patients with asthma/rhinitis may feel socially handicapped, at least during the season when the disease flares up.

The small numbers involved in the investigation mean, of course, that the conclusions must be taken with certain reservations as far as the social consequences are concerned. The fact that the persons interviewed knew the authors' personal attitude toward tobacco smoking from the ban on smoking in their waiting room, among other things, can have been of significance in the study of the attitudes.

There are no data to show whether the composition of the population seen in the physician's office differs from the average population. The office is located in an area in the township of Århus which was selected as an experimental region in other respects, because it is close to the township average.

However, there is reason to believe that the average age was lower than the poulation average.

The survey also shows that the attitude toward forced passive smoking justifies consideration by the authorities.

White and Froeb [1] concluded from an investigation of 2,100 persons that long-term exposure to tobacco smoke in the working environment (long-term passive smoking = involuntary inhalation of tobacco smoke by nonsmokers) significantly reduced the forced expiratory flow-rate (FEF) and the forced expiratory volume in one second (FEV_1), and compared passive smokers with light smokers in this respect.

O'Connell and Logan [2] found that exposure to tobacco smoke significantly aggravated the symptoms in 10% of 400 asthmatic children, and that daily exposure to polluted air (smoking by parents) aggravated the symptoms at least occasionally in 67%.

Based on an investigation of the effects of tobacco smoke in 32 healthy test subjects in a three-hour experiment, Hugod et al. [3] published some unfortunately oft-cited opinions on the harmlessness of long-term passive smoking, opinions which the investigation do not appear to support, but which unfortunately are often mentioned when smokers want to compound their conscience with regard to passive smokers.

Hugod since mentioned in a review article [4] that besides inconveniencing 80% of all nonsmokers, tobacco smoking also has a direct harmful effect on certain groups of patients, including those with asthma, but he did not mention patients with rhinitis. Thus it seems that allergy to tobacco rather than the irritating effect of tobacco smoke is referred to.

It was pointed out by Korsgaard [5] that tobacco consumption exceeding 9 units per day means almost a doubling of the suspended dust concentration in rooms compared with rooms in which tobacco is not smoked daily, but also stressed that there is great controversy worldwide concerning the suspended dust concentrations which cause changes in the status of patients with lung and heart diseases. In view of the fact that tobacco smoking in public places has been banned in 31 states of the United States [6] as well as in Finland and France, the [Danish] parliament must discuss a similar ban without delay. If one wishes to smoke, it is a private

matter, but where to smoke is a social issue. 5.2% of the population of Denmark have/had asthma, and 9.4% have/had allergic rhinitis, so that the social aspects are of significance for a large segment of the population [7,8].

Finally, it should also be recommended that an effect does not necessarily have to be harmful to be undesired. Healthy persons also feel inconvenienced without necessarily having social consequences.

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